UBiQUiTi
NETWORKS

LiteStation2
LiteStation5
User's Guide

Contents

Introduction

This guide presents the description of two models of the subscriber stations: LiteStation2 and LiteStation5.

LiteStation2 is a subscriber station that operates in IEEE 802.11b/g modes, while the LiteStation5 operates in IEEE 802.11a mode. The screenshots in this manual are made for LiteStation2 but they are suitable for the LiteStation5 similarly.

Quick Setup Guide

This Quick Setup Guide will guide you through quickly and easily configuration of this subscriber station. We suggest you change these parameters: 🗐

- Change IP address (static or dynamic),
- Define the ESSID to which the subscriber station will be associated,
- Define the IEEE 802.11 mode,
- Define the wireless security (None, WEP or WPA),
- Change the administrator's password.

For detailed setup and configuration instructions, please refer to the chapter *Configuration Guide.*

Follow these steps for subscriber station quick setup via web-browser interface:

Step 1   Login to the web management

Open the web browser and type the default IP address of the LiteStation2/LiteStation5 device **http://192.168.1.20/** into the browser address field. You will be prompted to enter the administrator login credentials:

- User Name: **ubnt**
- Password: **ubnt**

After successful administrator log on you will see the main page of the subscriber station web management interface.

Step 2   Configure network settings

The IP configuration as described below is required for LiteStation2 and LiteStation5 management purposes. IP addresses can either be retrieved from a DHCP server or configured manually.

Use the **Link Setup** menu to configure the device IP settings:

Bridge IP Address: specify the IP mode.

> **DHCP** – choose to assign the dynamic IP address and gateway address by the local DHCP server.
> **Static** – choose to assign a static IP address.

🗐

If you do not change any of configuration parameters the default values will be used.

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IP Address: enter IP address for subscriber station LiteStation2/LiteStation5.

Netmask: enter a subnet mask for subscriber station LiteStation2/LiteStation5.

Gateway IP: enter a gateway IP address for subscriber station LiteStation2/LiteStation5.

Step 3   Assign an ESSID to subscriber station

Use **Link Setup** menu to specify the ESSID of the wireless device to which the subscriber station will be associated:

ESSID: specify the ESSID of the wireless network device which the LiteStation2/LiteStation5 will associate to.

Refer to the section *Basic Wireless Settings* for detailed information.

Step 4   Specify the IEEE 802.11 mode

Specify the 802.11 wireless network mode by which the subscriber station will communicate with the wireless device:

Be sure, that chosen IEEE 802.11 mode is the same as configured on the wireless device.

IEEE 802.11 Mode: select the IEEE 802.11 mode of your wireless network.

> **B only** – connect to a 802.11b only network.
> **B/G Mixed** – connect to a 802.11b/g network.
> **G only** – connect to a 802.11g only network.
> **G Dynamic Turbo** – connect to a 802.11g network using SuperG.

For LiteStation5 model this screen shot will differ, choose the following options:

> **A** – allows connection to 802.11a networks.
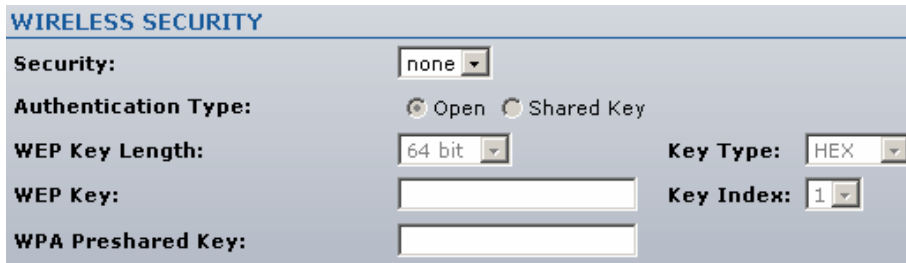> **A Static Turbo** – allows connection to 802.11a networks that

support Static Turbo for data rates up to 108 Mbps.
  A Dynamic Turbo – allows connection to 802.11a networks that support Dynamic Turbo for data rates up to 108 Mbps.

Step 5   Specify the security level

Choose the security method to protect your data that only authorized network users could access the network. You can choose **WEP**, **WPA** or **None** for your device.

If no security is needed, simply choose the **None** option:

WIRELESS SECURITY

Security:	none ▾		
Authentication Type:	⦿ Open ○ Shared Key		
WEP Key Length:	64 bit ▾	**Key Type:**	HEX ▾
WEP Key:		**Key Index:**	1 ▾
WPA Preshared Key:			

Security: select the encryption method or disable security. 📄

   None – disable security.
   WEP – enable WEP encryption.
   WPA – enable WPA with Preshared Key encryption.

Authentication Type: choose the one of the following modes.

   Open Authentication – the LiteStation2/LiteStation5 is visible to all devices on the network.
   Shared Authentication – allows communication only with other devices with identical WEP settings.

WEP Key Length: select the Key length here, either 64-bit, or 128-bit.

Key Type: use the **HEX** or **ASCII** option to specify the character format for the WEP key.

Key Index: specify the Index of WEP Key.

WEP Key: enter the encryption key to be used to encrypt and decrypt wireless traffic:

   For **64-bits** – specify pre-shared key as 5 HEX (0-9, A-F, and a-f) pairs (e.g. 0011223344) or 5 ASCII characters.
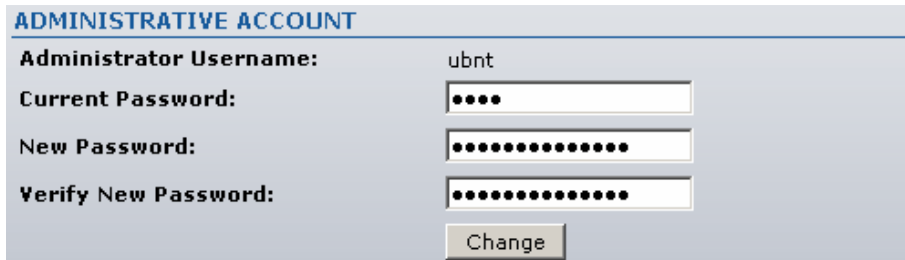   For **128-bits** – specify pre-shared key as 13 HEX (0-9, A-F, and a-f) pairs (e.g. 00112233445566778899AABBCC) or 13 ASCII characters.

WPA Preshared Key: enter a passphrase for WPA encryption. The preshared key is an alpha-numeric password between 8 and 63 characters long.

📄
The same encryption settings must also be enabled on wireless devices on your network.

Step 6   Change administrator password

For the security reasons the default administrator's password should be changed immediately. Use the **System** menu and specify the parameters:

ADMINISTRATIVE ACCOUNT

Administrator Username:	ubnt
Current Password:	••••
New Password:	••••••••••••••
Verify New Password:	••••••••••••••
	Change

Current Password: enter a current password value. Default administrators password is **ubnt**.

New Password: enter a new password value used for administrator authentication.

Verify Password: re-enter the new password to verify its accuracy.
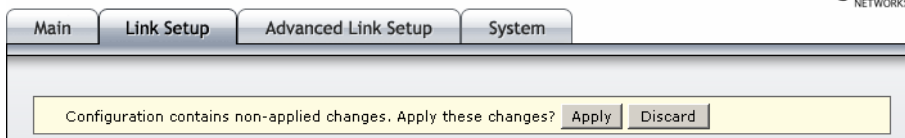
Change: click to change the login details of administrator.

Step7   Apply changes

After each configuration change the informational message suggesting you to apply changes and reboot the device will appear:

LiteStation2   UBIQUITI
                                                              NETWORKS

| Main | Link Setup | Advanced Link Setup | System |

Configuration contains non-applied changes. Apply these changes?   Apply   Discard

Apply: click to save changes and reboot the device.

Discard: click to discard changes.

After the general settings are changed, the subscriber station is now ready for basic operation. You can now use the web interface menu to configure many more details for your LiteStation2/LiteStation5.

As you have changed the subscriber station's IP address, be sure to use the new address the next time you access the configuration interface.

Configuration Guide

Each of the management windows (listed below) contains parameters that affect a specific aspect of the subscriber station:

Figure 1 – Configuration Management Menu

Main – displays current status of the subscriber station.

Link Setup – prepares the subscriber station for use in a wireless network, controls how a subscriber station associates to an access point, authenticates to the wireless network, encrypts and decrypts data.

Advanced Link Setup – controls how the subscriber station operates within a network.

System – controls main system maintenance parameters, administrator login credentials, firmware upgrade and logo customization.

Main Settings

This page displays a summary of status information of your subscriber station LiteStation2/LiteStation5. It shows important information for the station operating mode, network settings as well as traffic statistics of the wireless LAN interface.

Figure 2 – Current Status of the Subscriber Station

Base Station SSID: displays the SSID of the Access Point where the LiteStation2/LiteStation5 has associated.

Signal Strength, dBm: displays the wireless signal between the access point and the LiteStation2/LiteStation5. The represented value coincides with the graphical bar.

Use antenna alignment tool to adjust the subscriber station antenna to get better link with the wireless device. The antenna of wireless client has to be adjusted to get maximum signal strength.

Click the **Align Antenna…** button and the new pop-up window with signal strength indicator appears. Window reloads every second displaying current value of the signal strength:
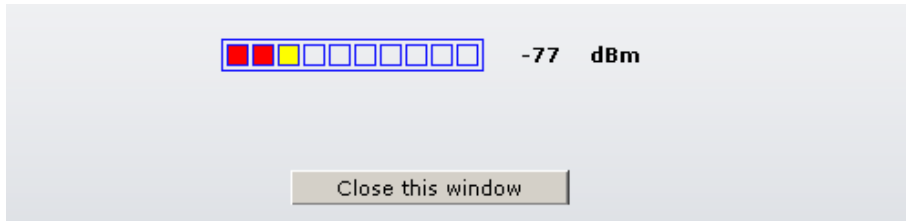
Figure 3 – Antenna alignment Tool

TX Rate: displays the current data transmission rate.

RX Rate: displays the current data reception rate.

Channel: displays the channel that LiteStation2/LiteStation5 uses to transmit and receive data.

Frequency: displays the frequency at which LiteStation2/LiteStation5 transmits packets to or receives packets from Access Points.

Security: displays the security level on the LiteStation2/LiteStation5.

QoS Status: displays the QoS Status of the LiteStation2/LiteStation5.

MAC: displays current MAC address of the LiteStation2/LiteStation5.

IP address: displays current IP address of the LiteStation2/LiteStation5.

Uptime: indicates the time, expressed in hours, minutes and seconds since last hard-reboot [days, hours:minutes:seconds].

Errors of Wireless Interface: displays the statistics of wireless interface errors.

Link Setup

The **Link Setup** page allows you to manage general parameters of the subscriber station LiteStation2/LiteStation5.

Basic Wireless Settings

The general wireless settings, such as wireless device ESSID, country code, output power, 802.11 mode and data rates can be configured on this section:

Figure 4 – Basic Wireless Settings

ESSID: specify the ESSID of the wireless network device where the LiteStation2/LiteStation5 will be associated to.

Use the **Select…** button next to **ESSID** entry field to load the **Site Survey** tool. Site Survey will search for all wireless networks (SSID) in range of the LiteStation2/LiteStation5 and allow you to select one for association. In case the selected network uses encryption, you first need to setup encryption on your LiteStation2/LiteStation5.

	MAC address	ESSID	Encryption	Signal strength, dBm	Frequency, GHz	Channel
○	00:20:A6:5D:C3:17	PROXIM	-	-76	2.412	1
○	00:0B:6B:4D:55:0B	KEBA-MESH	-	-89	2.437	6
◉	00:11:95:FA:0A:A4	DWL-2100AP	-	-85	2.437	6
○	00:0B:6B:4D:51:67	KEBA-MESH	-	-88	2.437	6
○	00:90:4B:CC:73:ED	KEBA-MESH-SS	-	-91	2.437	6
○	00:02:6F:22:30:3C	bbd	-	-82	2.462	11
○	0E:02:6F:22:30:3C	bbd-WDS	-	-82	2.462	11
○	00:0B:6B:4D:53:A2	zmogo-free-base	WEP	-91	2.447	8
○	00:0B:6B:4D:50:7B	MESH-SS	-	-88	2.462	11
○	00:0B:6B:4D:52:30	MESH-SS	-	-93	2.462	11
○	00:02:6F:21:31:79	WILI_OPEN_DHCP_UAT	-	-89	2.417	2
○	06:02:6F:21:31:79	WILI_OPEN_UAM_DHCP	-	-90	2.417	2
○	06:02:6F:22:30:3C	bbd-WPA	WPA	-82	2.462	11
○	0A:02:6F:22:30:3C	gniuzulas-wpa-radius	WPA	-83	2.462	11

Select | Scan | Close this window

Figure 5 – Site Survey Scan

Select: click to associate chosen wireless network with the subscriber station LiteStation2/LiteStation5.

Scan: click to refresh the wireless network table.

Close this window: click to close Site Survey window.

Country Code: choose from drop-down list the country in which you will use the subscriber station LiteStation2/LiteStation5.

Output Power: specify the wireless card output power at which your client adapter transmits data in dBm using slider. When entering output power value manually, the slider position will change according to the entered value. The transmit power level that is actually used is limited to the maximum value allowed by your country's regulatory agency.

IEEE 802.11 Mode: select the IEEE 802.11 mode of your wireless network.

For LiteStation2 choose 802.11b/g options:

> **B only** – allows connection to 802.11b networks.
> **B/G Mixed** – allows connection to 802.11b and 802.11g networks.
> **G only** – allows connection to 802.11g networks.
> **G Dynamic Turbo** – connect to the wireless network that supports 802.11g Dynamic Turbo mode for data rates up to 108 Mbps.

As the LiteStation5 operates in 802.11a mode, for this model choose the following options:

> **A** – allows connection to 802.11a networks.
> **A Static Turbo** – allows connection to 802.11a networks that

support Static Turbo for data rates up to 108 Mbps.

A Dynamic Turbo – allows connection to 802.11a networks that support Dynamic Turbo for data rates up to 108 Mbps.
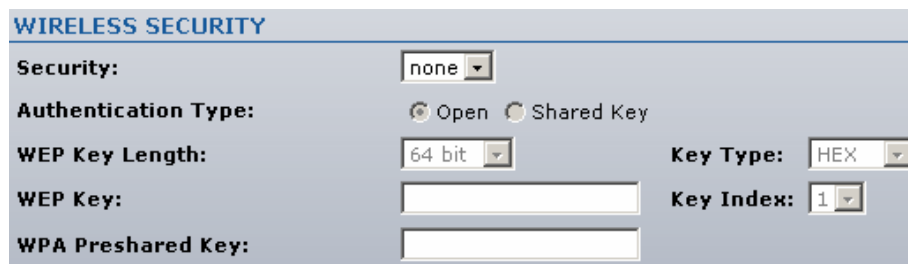
Data Rate: choose the data rates in Mbps at which LiteStation2/LiteStation5 should transmit packets to or receive packets from Access Point. Use **Auto** option if you are having trouble getting connected or losing data at a higher rate. In this case the lower data rates will be used by station automatically.▤

The list of data rates will vary according the selected IEEE 802.11 mode.

Wireless Security

This section enables you to set parameters that control how the subscriber station associates to a wireless device and encrypts and decrypts data:

Figure 6 – Wireless Security Settings

Security: select the encryption method.

None – disable security.
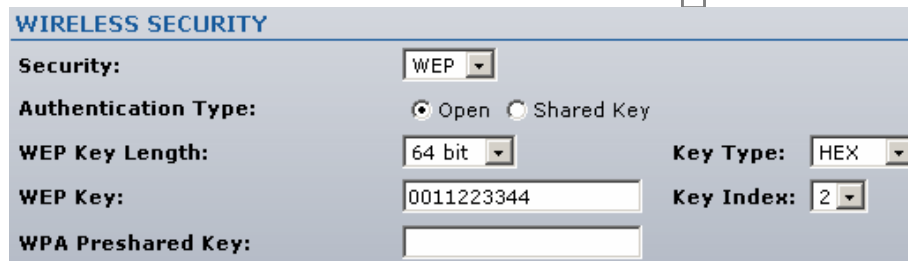**WEP** – enable WEP encryption.
WPA – enable WPA with preshared key encryption.

Authentication Type: choose the one of the following modes.

Open – the LiteStation2/LiteStation5 is visible to all devices on the network.
Shared Key – allows communication only with other devices with identical WEP settings.

WEP (Wired Equivalent Privacy) is based on the IEEE 802.11 standard and uses the RC4 encryption algorithm. Enabling WEP allows you to increase security by encrypting data being transferred over your wireless network. Enable a WEP security:▤

Figure 7 – Configuration of the WEP Security

WEP with the same encryption settings must also be enabled on wireless devices on your network.

WEP Key Length: select the Key length here, either 64-bits, or 128-bits.

Key Type: use the **HEX** or **ASCII** option to specify the character format for the WEP key.
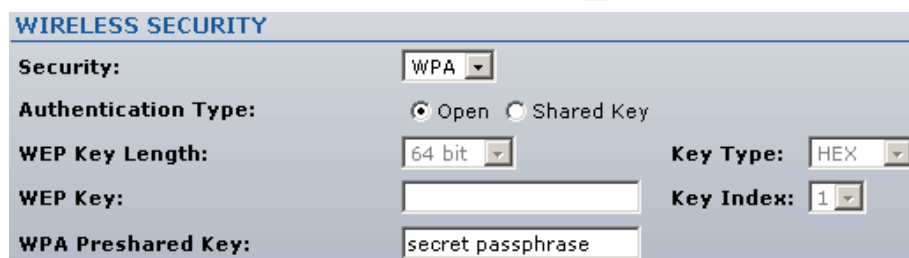
Key Index: specify the Index of WEP Key.

WEP Key: enter the encryption key to be used to encrypt and decrypt wireless traffic:

> For **64-bits** – specify pre-shared key as 5 HEX (0-9, A-F, and a-f) pairs (e.g. 0011223344) or 5 ASCII characters.
> For **128-bits** – specify pre-shared key as 13 HEX (0-9, A-F, and a-f) pairs (e.g. 00112233445566778899AABBCC) or 13 ASCII characters.

WPA with Preshared Key offers improved data encryption through the Temporal Key Integrity Protocol (TKIP). By using TKIP, the security keys change at set intervals, creating a network that is more secure than WEP encryption. Enable WPA security:▤
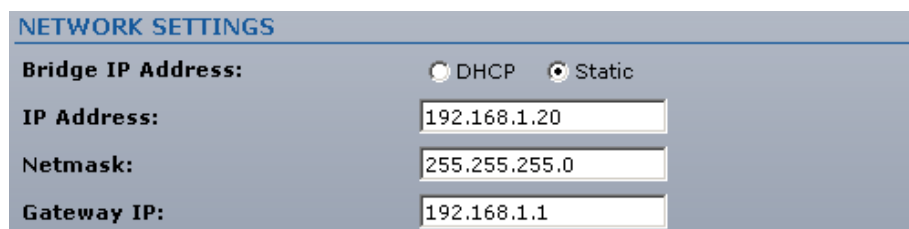

Figure 8 – WPA Security Settings

WPA Preshared Key: enter a WPA encryption passphrase. The preshared key is an alpha-numeric password between 8 and 63 characters long.

Network Settings▤

The IP configuration as described below is required for station management purposes. IP addresses can either be retrieved from a DHCP server or configured manually:

Figure 9 – Network Settings of the Subscriber Station

Bridge IP Address:

> **DHCP** – choose to assign the dynamic IP address and gateway address by the local DHCP server. ▤
> **Static** – choose to assign a static IP address for the LiteStation2/LiteStation5.

WPA with the same encryption settings must also be enabled on wireless devices on your network.

If you change the IP address manually, make sure that the chosen IP address is unused and belongs to the same IP subnet as your wired LAN, otherwise you will loose the connection to the LiteStation2/LiteStation5 from your current PC. If you enable the DHCP client, the browser will loose the connection after reboot, because the IP address assigned by the DHCP server is not predictable.

Be sure that the DHCP server is running on your network.

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IP Address: enter IP address for subscriber station LiteStation2/LiteStation5

Netmask: enter a subnet mask for subscriber station LiteStation2/LiteStation5.
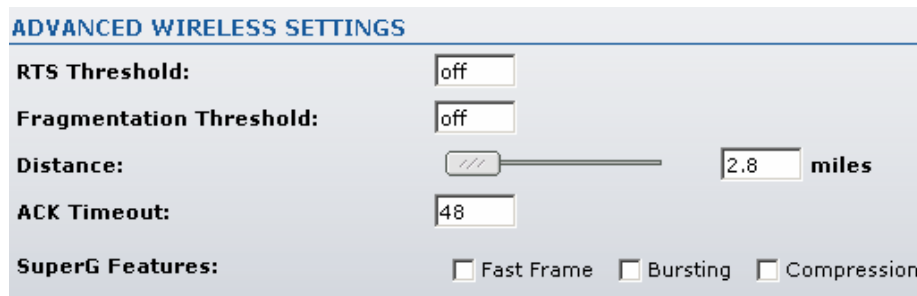
Gateway IP: enter a gateway IP address for subscriber station LiteStation2/LiteStation5.

Advanced Link Setup

The **Advanced Link Setup** page allows you to manage advanced settings that influence on the subscriber station LiteStation2/LiteStation5 performance.

Advanced Wireless Settings

The advanced wireless settings are only for more technically advanced users who have a sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the changes will have on your subscriber station.

Figure 10 – Advanced Wireless Settings

RTS Threshold: determines the packet size of a transmission and, through the use of an access point, helps control traffic flow. The range is 0-2347bytes, or word 'off'. The default value is 2347 (2347 means that RTS is disabled).

Fragmentation Threshold: specifies the maximum size for a packet before data is fragmented into multiple packets. This value should remain at its default setting of 2346. The range is 256-2346 bytes, or word 'off'. Setting the Fragmentation Threshold too low may result in poor network performance. Only minor modifications of this value are recommended.

Distance: specify the distance value in miles using slider or enter the value manually. The signal strength and throughput falls off with range, so, the farther the distance for the link, the higher gain the antenna should have. Changing the distance value will change the ACK Timeout to the appropriate value of the distance.

ACK Timeout: specify the ACK timeout (integer, 20-520). This is the amount of time the subscriber station will wait to hear a response from the wireless device. If the timeout is set too short or too long, it will timeout and have trouble connecting. Changing the ACK Timeout value will change the **Distance** to the appropriate distance value for the ACK Timeout.

SuperG/SuperA Features: select the checkboxes to enable the chosen SuperG (LiteStation2) or SuperA (LiteStation5) features:

> **Fast Frame** – utilizes frame aggregation and timing modifications
> **Bursting** – more data frames per given time period
> **Compression** – real-time hardware data compression

802.11e QoS (WMM) Settings

Wi-Fi Multimedia (WMM) is a component of the IEEE 802.11e wireless LAN standard for quality of service (QoS). The QoS assigns priority to the selected network traffic and prevents packet collisions and delays thus improving VoIP calls and watching video over WLANs.
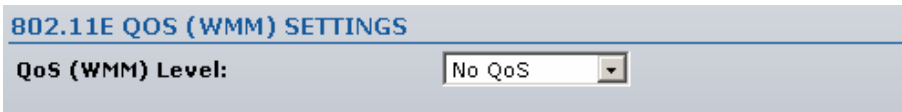
802.11E QOS (WMM) SETTINGS

QoS (WMM) Level: No QoS

Figure 11 – QoS Setup

QoS (WMM) Level: choose the type of the network traffic to which the priority will be set or disable the QoS feature.

> **No QoS** – disable QoS.
> **Video Priority** – enable priority of the video traffic.
> **Voice Priority** – enable priority of the voice traffic.

QoS with the same level must be enabled on the wireless device to which the subscriber station will associate.

Antennas
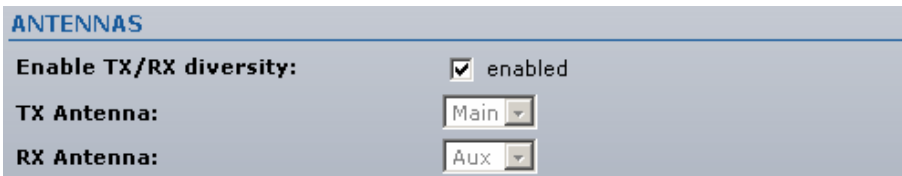
Use this section to configure antenna settings:

ANTENNAS

Enable TX/RX diversity: ☑ enabled
TX Antenna: Main
RX Antenna: Aux

Figure 12 - Antenna Settings

The Antenna settings are available only on a subscriber station model LiteStation5.

Use the **antenna diversity** to select the best reception signal at the two integrated antennas. In diversity operation, the station receives signals on both antennas but transmits on the antenna with the strongest received signal.

Enable TX/RX diversity – choose this option to enable or disable the antenna diversity.

If the Antenna Diversity is enabled, the TX Antenna and RX Antenna settings have no effect.

TX Antenna – choose the single antenna **Main** or **Aux** for transmitting.

RX Antenna – choose the single antenna **Main** or **Aux** for receiving.

System

This page enables administrator to reboot the subscriber station, set it to factory defaults, upload a new firmware and configure administrator's credentials.

Firmware

Use this section to find out current software version and update with new firmware. 🗐

The LiteStation2/LiteStation5 subscriber station system firmware update is compatible with all configuration settings. When the device is updated with a newer version or the same version builds, all the system's configuration will be preserved after the upgrade.

FIRMWARE

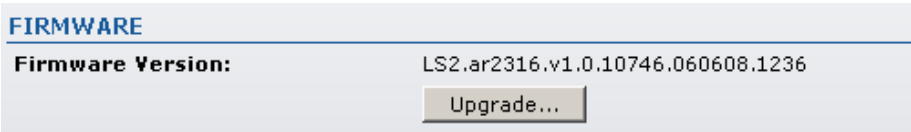| Firmware Version:	LS2.ar2316.v1.0.10746.060608.1236
	Upgrade...

Figure 13 – Firmware Upgrade 1

Firmware version: displays version of the current firmware.

Upgrade…: click to load the device firmware upgrade window.

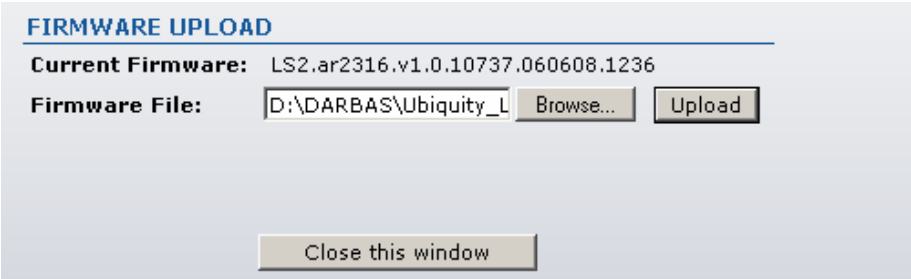Click the **Upgrade…** button and the new Firmware Upload pop-up window will be displayed:

FIRMWARE UPLOAD

Current Firmware:	LS2.ar2316.v1.0.10737.060608.1236
Firmware File:	D:\DARBAS\Ubiquity_L Browse... Upload

Close this window

Figure 14 – Firmware Upgrade 2

Current Firmware: displays version of the current firmware.

Firmware File: click the **Browse…** button to specify the new firmware image location or specify the full path and click the **Upload** button.

Close this window – cancel the upload process.

The new firmware image is uploaded on the system, use **Upgrade** button to upgrade a new system firmware: 🗐

Use only an official Ubiquiti firmware image for update.

Do not switch off and do not disconnect the LiteStation2/LiteStation5 from the power supply during the firmware upgrade process as this can damage the device!

FIRMWARE UPGRADE

Current Firmware Version:	LS2.ar2316.v1.0.10737.060608.1236
Uploaded Firmware Version:	LS2.ar2316.v1.0.10746.060608.1246

Upgrade

Figure 15 – Firmware Upgrade 3

After clicking the **Upgrade** button the upgrade process starts immediately:

FIRMWARE UPGRADE

Firmware is being upgraded.
This operation takes several minutes to complete -
meanwhile DO NOT POWEROFF the device!

Close this window

Figure 16 – Progress of the Firmware Upgrade

Close this window – close firmware upgrade window. This action will not cancel the firmware upgrade process.

Administrative Account

In this section you can choose and modify the administrator password to protect your LiteStation2/LiteStation5 from unauthorized configuration.

ADMINISTRATIVE ACCOUNT

Administrator Username:	ubnt
Current Password:	••••
New Password:	••••••••••••••
Verify New Password:	••••••••••••••

Change

Figure 17 - Change Administrator Settings

The default administrator settings are:

- Username – ubnt
- Password – ubnt

Administrator Username: displays name of the system user. The username is not configurable parameter, so it cannot be changed.

Current Password: enter a current password value.

New Password: enter a new password value used for administrator authentication.

Verify Password: re-enter the new password to verify its accuracy

Change: click to change the login details of administrator.

Logo Customization

Use this section to enable and upload your custom logo on the LiteStation2/LiteStation5 user interface. The logo must conform to these limitations:

- The limit of logo size is 50Kb.
- The maximum height of logo should be 70 pixels.
- Only .gif format images are accepted.

To upload your custom logo, enable logo customization and specify the location of logo file:

Figure 18 – Custom Logo Upload

Enable Custom Logo: click to enable logo customization. Deselecting this option the custom logo will be removed and the default Ubiquiti logo will be set back.

Logo Target URL: specify the target URL of custom logo.

Logo File: click **Browse…** button to navigate to and select the logo file or specify the full path and click the **Upload** button.

Change: click to change the logo on the LiteStation2/LiteStation5 user interface.

Device Maintenance

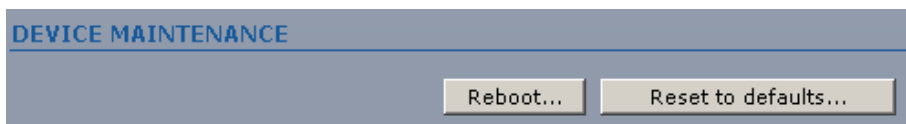Use this section to reboot subscriber section or reset station parameters to factory default values:

Figure 19 – Device Maintenance Settings

Reboot: click to reboot device in the current configuration.

Reset to Defaults: click to reset your subscriber station into factory defaults status.

Resetting the device to factory defaults, custom logo will be set back to default Ubiquiti logo.

Keep in mind that reset button will set the administrator password back to default:

- Username – ubnt
- Password – ubnt